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Artificial Intelligence and Its Uses Against Covid-19 Pandemic

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Abstract: Covid-19, is a disasterous pandemic that has uprooted the whole world resulting in loss of lives, wealth and pausing the growth of world economies. When humans were put to pause by this pandemic, artificial intelligence emerged as the only source to revive the off track day to day life of people and to make it work for essential commodities. This research paper deals with the uses of artificial intelligence in covid-19 pandemic. This study reveals how artificial intelligence has emerged as a platform to collect data, to analyze patients of covid-19 for making antidote of covid-19, diagnosis & prognosis, treatments & cure, etc. The data taken is both primary and secondary. Secondary data is collected from some research journals & other publications based on covid-19 available online. Primary data is my original self-analyzed data. This study reveals artificial intelligence & its uses in covid-19 pandemic.
Keywords: Artificial Intelligence, Covid-19, Coronavirus, Data Dashboards, Social Control.

1.1 Introduction

Covid-19 or Coronavirus disease is caused by a virus named as SARS-CoV-2 virus. This deadliest disease was first identified in China in Dec, 2019 and was declared pandemic by WHO on 11 March, 2020. Artificial intelligence has emerged as the most potential & powerful tool for fighting against covid-19 all over the world. Artificial intelligence can be defined as computer vision, machine learning and natural language processing applications to teach computers the use of big data for pattern prediction, recognition & explanation. The various artificial intelligence functions are used to recognize (diagnose), explain (treat) and predict covid-19 infections/ outbreaks and help to manage socio-economic assertions.

This article, hence, provides review of how artificial intelligence has worked potentially to control the impact of covid-19 and fight against it. This aims to provide a base for further research policy and medial analysis. The cost of this pandemic has been paid by humans in term of loss of lives and wealth and growth. The growth of world economies has been deteriorated due to this pandemic and artificial intelligence contributes a lot to test the people for covid-19, helps in its management, providing medical help through technology, etc.

1. Objectives of the Study

1. To find the impact of artificial intelligence against covid-19.
2. To study the use of artificial intelligence against covid-19.
3. To study the overall effect of artificial intelligence against covid-19.

2. Research Methodology

The data taken is both primary and secondary. Secondary data is collected from some research journals & other publications based on covid-19 available online. Primary data is my original self-analyzed data.

3. Contributions & Uses of Artificial Intelligence against Covid-19

There have been 5 areas where Artificial intelligence has contributed to fight against covid-19 pandemic. These are as follows:

(1)Early Warnings and Alerts

Artificial intelligence has helped a lot to provide for early warnings and alerts to the whole world. Artificial intelligence based Canadian model "Bluedot" is considered legendary as it helps to detect infectious diseases in humans & their outbreaks. This model is a quite low cost model but has provided to be highly effective in covid-19 case. According to records, bluedot predicted the outbreak of covid-19 pandemic on 31st Dec, 2019 before the WHO announced it on 9th Jan, 2020. The researchers engaged with bluedot published a notice in the 'Journal of Travel Medicine' in which they listed the top 20 places where the people of Wuhan would visit. They warned that these cities will be at forefront of the massive spread of this deadliest disease called coronavirus or covid-19. While bluedot announced about the pandemic on 31st Dec, 2019, another

artificial intelligence tool i.e 'Healthmap' at Boston's Children Hospital in USA, predicted & warned about this disease on 30th Dec, 2019. Moreover, after this prediction, 30 minutes later a scientist at Program for Monitoring Emerging Diseases also gave an alert about the disease. Therefore, artificial intelligence has helped a lot in predicting disease & to give early warnings.

(2) Data Dashboards

With the emergence of covid-19, a new industry has also emerged and this industry is the industry of data dashboards. Data dashboards are the informative tools that visually recognizes, tracks, display & analyze key data informators. These data dashboards have helped a lot to track, analyze & display the rising covid-19 cases and have also displayed various information about covid-19. They have helped to visualize the covid-19 pandemic. The MIT technology review has listed the top data dashboards on the basis of their tracking & forecasting efficiency. Some of the top dashboards are of Healthmap, Next Strain, Upcode, The baselab, The New York Times, The BBC, etc. The dashboards provide global overview whereas many countries have developed their own dashboards. South Africa has developed its own dashboard named as "The Covid-19 ZA South Africa Dashboard". India has also developed its own dashboard named as "Corona India Dashboard". South Africa's dashboard is maintained by Data Science for Social Impact at the University of Pretoria and India's dashboard is maintained by Government of India.

(3) Treatment and Cure

Even before this pandemic outbreak various medical organizations were planning to launch artificial intelligence based model for drug discovery & for repurposing the existing medicines or drugs. In case of covid-19, various data centers and research labs have prevailed the recruitment of artificial intelligence for the research of treatment and cure in the form of vaccine for covid-19. It has hoped that artificial intelligence will help to accelerate the process of new drug discovery and for repurposing the exiting medical drug. For example: The structure of the protein of coronavirus (covid-19) has been predicted by Google's Deep mind. This structure could be helpful for developing the vaccine for the virus. However, Google Deep mind has made it very clear on their website that this structure needs to be verified experimentally & this is not the ultimate solution. Although, the vaccine for this virus is not currently available and these drugs are to be approved by various scientists & medical teams and once identified, approved and screened, these drugs will be available for treatment. A time period of 18 months is estimated for vaccine to be available for treatment.

(4) Diagnosis and Prognosis

In addition to the process of predicting and tracking the spread of coronavirus potentially, artificial intelligence can also be used for diagnosis and prognosis of the virus. In fact, diagnosis and prognosis is the foremost initiative where the rush for the use of artificial intelligence focused. Quick & accurate diagnosis of coronavirus or covid-19 can save lives and also limit the speed of virus and also provide for the data to train artificial models. There is an on growing effort for training the artificial intelligence models to diagnose the covid-19 by using chest radiography image. In a study by Bullock et al. (2020), he argues that artificial intelligence can be as accurate as humans resulting in saved time of doctors and in cheapest cost than standard test. Presently, this artificial intelligence model for diagnosis of covid-19 have not been brought into practice potentially but according to report number of Chinese hospitals have made use of artificial intelligence model associated radiology technologies. Many radiologists have reported that due to the lack of data, they are unable to train the artificial intelligence model in much effective manner. Hence, the most efficient use of these artificial intelligence models has not been made yet to diagnose covid-19.

(5) Social Control

Artificial intelligence is being used for social control. Artificial intelligence has been effectively used to manage the covid-19 pandemic by scanning the infected people and limit the speed of the disease. It has further helped in maintaining certain measures such as social distancing and curfew or lockdown. In China, infrared cameras made by a Chinese firm called Baidu, are being used at train stations and airports to scan the people with a high body temperature. These cameras can scan 200 people at a time and can catch the people whose body temperature is more than 37.3 degrees but to some extent these cameras has been criticized as they failed to identify the person with fever if that person is wearing glasses and moreover, it fails to identify where high body temperatures is result of covid-19 infection or some other reason. Moreover, an artificial intelligence application named as "Arogya Setu" has been launched by Indian government that provides information to the

person regarding the number of covid-19 patients in their locality and also warns them about when a new person in their locality gets infected with covid-19.

4. Conclusion

In conclusion, we can conclude that artificial intelligence though very effective and efficient but its potential use has not been yet made in this pandemic due to various reasons such as: too less data to train artificial intelligence model, too big noisy data to filter and interpret, lack of awareness, lack of approval by various scientists and radiologists, etc. Although, artificial intelligence can be used effectively to find against covid-19 and other pandemics but from the above research we can conclude that artificial intelligence result will take time to be visible as artificial intelligence model and system have not crossed the preliminary stage. This research reveals that in future artificial intelligence will prove as an effective tool to control the future pandemic but the major drawback that would occur is the privacy control for the public. As the governments will continue the surveillance of their people even after the pandemic, the privacy of people is at risk and thus, the risk of erosion of data privacy is appropriately justified. So, we can conclude that artificial intelligence applications usage is limited during this pandemic nut in future course of action, the use of artificial intelligence will lead to digitalization of the economy resulting in more and more automation and replacement of human labor and more growth of monopolistic market dominance by few large market players.

4.1 Outcomes of the Study

1. Artificial intelligence has posed positive impact on society against covid-19.
2. Artificial intelligence has been used to fight against covid-19 by providing for treatments and cure, social control, diagnosis and prognosis, etc.
3. The constraint that is hindrance in use of artificial intelligence against covid-19 is the erosion/ loss of data privacy.

4.2 Limitations of the Study

1. Artificial intelligence is much wider concept that could not be covered in a single research paper.
2. World has still not over comed the covid-19 pandemic and research about its vaccine is still going on.
3. Due to time constraint, much research on use of artificial intelligence against covid-19 cannot be persued.

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